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RESIDENTIAL MOBILITY AND RISK OF CHILDHOOD ACUTE LYMPHOBLASTIC LEUKEMIA (ALL): AN ECOLOGICAL STUDY. *A. Adelman, D. Sinha, and F. Groves (Medical University of South Carolina, Charleston, SC, 29425).

To investigate the relationship between population-mixing and childhood ALL suggested by previous studies, we conducted an ecological analysis by Poisson regression using data on incidence during 1992–1998 from the Surveillance, Epidemiology, and End Results (SEER) Program and on residential relocation from the 1990 US census. Incidence data were coded by county, sex, and race for 200 counties covered by SEER and the state of Hawaii. The response variable was the count of cases in each race-sex stratum in each county. The explanatory variables were the proportion of people in each county who moved between 1985 and 1990 ("proportion moved"), sex, and race. The logarithm of the person-years at risk was an offset term. Rates in each sex were modeled separately. In males, race and proportion moved significantly predicted the incidence of childhood ALL. The risk ratios for the middle and upper strata of proportion moved versus the lower stratum were 1.5 (95% confidence interval (CI): 1.2, 1.9) and 1.3 (95% CI: 1.0, 1.7) in white males, 1.0 (95% CI: 0.4, 2.5) and 2.3 (95% CI: 1.0, 5.2) in black males, and 1.7 (95% CI: 0.8, 4.1) and 1.5 (95% CI: 0.6, 4.2) in males of other races. No relationship between proportion moved and incidence of childhood ALL was found in females. Whites and "others" had a higher incidence of childhood ALL than blacks in both sexes. Our findings suggest a high degree of residential mobility is directly associated with childhood ALL incidence rates for males at the county level in the USA. Further investigation of the relationship between childhood ALL, residential mobility, and other potentially relevant variables is in progress.

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HORMONAL FACTORS AND BILIARY TRACT CANCER RISK AMONG WOMEN. *M. Althuis, Y.-T. Gao, A. Rashid, J. Deng, B.-S. Wang, M.-C. Shen, L. Sakoda, L.A. Brinton, J.F. Fraumeni, Jr., and A.W. Hsing (Division of Cancer Epidemiology and Genetics, National Cancer Institute, Bethesda, MD 20892).

Because biliary tract cancers are rare, few studies have been large enough to evaluate risk factors by anatomic subsite or by gender. Gallbladder cancer is one of the few cancers diagnosed more frequently among women than men, suggesting that hormonal factors may be involved in the development of tumors and/or their main predisposing condition, gallstones. To better elucidate the etiology of biliary tract cancers, we conducted the largest-to-date population-based case-control study in Shanghai, China where incidence has more than doubled in recent years. The study included women diagnosed during 1997–2001 with cancers of the gallbladder (n = 280), extrahepatic bile duct (n = 99), or ampulla of Vater (n = 31). Population (n = 586) and stone (n= 648) controls were frequency matched to cases on age. Risk of gallbladder cancer was greater among women who had more births when cases were compared to population controls (5+ versus 1–2 births: OR = 1.7; 95% CI, 1.0, 2.8). Excess risk persisted when analyses were restricted to cases and controls with prior gallstones (OR = 1.7; 95% CI, 0.9, 3.0). However, parity was not related to cancer risk of the other two subsites. No other risk factor indicative of exposure to estrogens, such as early age at menarche, older age at first birth, late menopause, or use of exogenous hormones, was associated with biliary tract cancers. It appears that parity and gallstones may act together to increase the risk of gallbladder cancer, but the underlying mechanism is unclear.

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THE MOLECULAR EPIDEMIOLOGY OF BREAST CANCER: HER-2/NEU AND P53 OVEREXPRESSION AMONG WOMEN WITH BREAST CANCER. *JL Bernstein, M Press, WD Thompson, R Lapinski, I Bleiweiss, JY Zhou, J Schildkraut, M Gammon, and R Haile (Mount Sinai School of Medicine, New York, NY, 10021).

Molecular changes, including overexpression of the oncogene HER-2/neu and the tumor suppressor gene p53, are detected in some, but not all, breast tumors. The heterogeneity of molecular alterations may be indicative of distinct etiologic subgroups of breast cancer. Little is known about the relationship among epidemiologic risk factors for breast cancer (suspected or known), tumor characteristics, and overexpression of these molecular markers. To examine these relationships, we retrieved paraffin-embedded breast tumor tissue blocks from 955 young women diagnosed with breast cancer between 1980 and 1982 who were part of the population-based CASH Study. Using immunohistochemistry, 21% and 33% of the tumors overexpressed HER-2/neu and P53, respectively; 9% overexpressed both markers. For each marker, unconditional logistic regression was used to calculate adjusted odds ratios (OR) and 95% confidence intervals (CI). HER-2/neu overexpression was positively associated with early stage (OR = 2.36, CI = 1.37, 4.05) and inversely with histology (lobular vs. ductal OR = 0.15, CI = 0.04, 0.61), benign breast disease (OR = 0.58, CI = 0.35, 0.97) and breast cancer in a first degree relative (OR = 0.34, CI = 0.15, 0.77). Overexpression of p53 was positively associated with young age at diagnosis (<40 OR = 1.85, CI = 1.18, 2.91) and inversely with early stage (OR = 0.53, CI = 0.29, 0.96) and age at menopause (OR = 0.96/year, CI = 0.92, 0.99). Neither marker was associated with smoking, oral contraceptive or other hormone use, or reproductive history. These data suggest independent molecular pathways in breast carcinogenes.

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DIFFERENCES IN TESTIS CANCER SURVIVAL BY RACE: A POPULATION-BASED STUDY, 1988–98. *M.L. Biggs and S.M. Schwartz (Fred Hutchinson Cancer Research Center and University of Washington, Seattle, WA 98109)

Survival differences between black and white cancer patients have been documented for a variety of cancer sites. Previous analyses of testis cancer survival have primarily been clinic-based and focused on treatment; none have examined survival differences by race. To examine the influence of race on testis cancer survival, we analyzed 8,669 primary cases of testis cancer diagnosed during 1988–89 and reported to the National Cancer Institute's Surveillance, Epidemiology, and End Results Program. We calculated relative survival rates for black and white patients overall, and stratified by stage. Black patients experienced poorer survival than white patients: 5-yr. survival was 87% vs.96%. A greater proportion of black patients were diagnosed at late stages (15% of black patients were diagnosed in Stage III compared to 10% of white patients), and at each stage, survival among blacks was lower than among whites. The racial disparity in survival was particularly apparent among patients diagnosed with Stage III cancer; 5-yr. survival was 76% in whites compared to 60% in blacks. On average, black patients had larger tumors than white patients diagnosed at the same stage. For example, among Stage II patients, 50% of tumors from black patients were >5 cm, compared to 25% of tumors from white patients. Additional research is needed to understand why black patients present with later stage disease and to determine whether this fully accounts for the poorer survival of black patients.